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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,124	06/25/2004	Katsuhiko Takahashi	Q81414	7360
23373 7590 05/16/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER NGUYEN, KHANH TUAN	
			ART UNIT 1751	PAPER NUMBER
			MAIL DATE 05/16/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/500,124

Applicant(s)

TAKAHASHI ET AL.

Examiner

Khanh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

DETAILED ACTION

***Response to Amendment***

1. The amendment filed on 04/12/2007 is entered and acknowledged by the Examiner. Claims 1 and 4-23 are currently pending in the instant application. New claim 23 is added. Claims 2 and 3 have been cancelled.

2. Claims 1-2, 4-6, 16-18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bergo-Heineman et al. (U.S Pat. 2,560,151) are withdrawn in view of applicant's amendments and/or remarks.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergo-Heineman et al (U.S Pat. 2,560,151) in view of Negm et al. (U.S Pat. 5,399,547) is withdrawn in view of applicant's amendments and/or remarks.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergo-Heineman et al. (U.S Pat. 2,560,151) in view of Dickenson et al (U.S Pat. 2,592,870) are withdrawn in view of applicant's amendments and/or remarks.

3. This rejection is maintained for the reasons set forth below.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 1, 8-15 and 22-23 are rejected under 35 U.S.C. 102(a) as being unpatentable by Niihara et al. (U.S. Pub. 2004/0005406 hereinafter, "Niihara").

Regarding claim 1, Niihara discloses a metal coating method wherein the inorganic powders are dispersed in an organic solvent [0005]. The organic solvent is a solvent that has a reducing property [0007]. The inorganic compounds are oxides such as silver oxide, palladium oxide and the like having an average diameter of from several microns to dozens of microns [0028]. The prior art also discloses silver oxide ( $\text{Ag}_2\text{O}$ ) powder having a particle diameter of about 2 microns is used to coat the  $\text{SiO}_2$  ceramic plate in example 1 [0041-0042]. The reference specifically or inherently meets each of the claimed limitations. The reference is anticipatory.

Regarding claims 8 and 9, Niihara further discloses a metallic film forming by coating the ceramic substrate with silver oxide coating composition followed by heating the coating from about 20-1000 degree Celsius for several minutes to several days to stabilize the adhesion of the metallic film on the substrate [0033]. The prior art further exemplify a silver oxide coating on silicon dioxide ceramic substrate is heated for about 30 minutes at 100 degree Celsius to stabilize the film [0043]. Niihara does not explicitly disclose the metallic coating having the claimed properties. However, it would have been obvious to one of ordinary skill in the art to have had a seasonably expectation at the time the invention was made that the metallic coating as taught by Niihara would

encompass the claimed properties because the composition comprises of similar components that is produce by similar method for similar utility. One skilled in the art would have reasonably expected the metallic film disclose by Niihara would have the claimed properties. The Examiner further notes that the USPTO is not equipped to perform laboratory testings and experimental benchworks to measure the properties of the resulting composition. The burden is on the applicant to prove otherwise.

Any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct, not the examiner to show the same process of making, see *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

Regarding claim 10, Niihara further discloses a metallic film may be form with particles having a diameter of 1 nanometer or less [0030]. The reference disclosure reads on the instant claimed limitation of the average particle of the particulate silver compound is about 0.5 microns or less.

Regarding claims 11-13, any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to

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establish that their product is patentably distinct, not the examiner to show the same process of making, see *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324. Burden is on applicants to show product differences in product by process claims, see *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985); *In re Best*, 195 USPQ 430 (CCPA 1977); *In re Fessman*, 180 USPQ 324 (CCPA 1974); *In re Brown*, 173 USPQ 685 (CCPA 1972).

Regarding claims 14 and 15, Niihara further discloses a metal coating composition, wherein the amount of organic solvent with reducing property (reducing agent) used is about 0.5 to 99.5 weight percent [0027]. The reference disclosure reads on the instant claimed limitation of reducing agent used is about 20 moles or less with respect to about 1 mole of particulate silver compound.

Regarding claim 22, Niihara further discloses a metallic film forming by coating the ceramic substrate with silver oxide coating composition followed by heating the coating from about 20-1000 degree Celsius for several minutes to several days to stabilize the adhesion of the metallic film on the substrate [0033]. A reducing radical can be generated by applying the heat to the reducing organic solvent, the reducing radical reduces the inorganic metallic compound to generate a metallic ion such as silver ion and or a cluster such as alcohol [0029].

Regarding claim 23, Niihara discloses a metallic coating composition that can coat a plastic substrate [0031]. The silver ion is attached on the substrate to form a metallic film [0029]. The compositions as taught by Niihara would have encompass the claimed properties because the composition comprises of the similar components that is produce by similar method for the similar utility. The Examiner further notes that the USPTO is not equipped to perform laboratory testings and experimental benchworks to measure the properties of the resulting composition. The burden is on the applicant to prove otherwise.

Further, a known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use, see *In re Gurley*, 27 F.3d 55 1,554,3 1 USPQ2d 1 130, 1132 (Fed. Cir. 1994). Further, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including non-preferred embodiments, see *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989).

In addition, the court has held that compositions are indefinite for being defined in terms of properties alone. *Ex parte Spacht*, 165 USPQ 409 (PO Bd Pat App 1969); *Ex parte Slob* 157 USPQ 172 (PO Bd Pat. App 1967); *Ex parte Pulvari*, 157 USPQ 169 (PO Bd Pat. App 1966).

***Claim Rejections - 35 USC § 103***

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-6, 16-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niihara et al. (U.S. Pub. 2004/0005406) in view of Bergo-Heineman et al. (U.S. Pat. 2,560,151 hereinafter, "Bergo-Heineman").

Niihara is relied upon set forth above. With respect to instant claim 4, Niihara does not disclose the organic solvent comprises at least one of ethylene glycol, diethylene glycol, triethylene glycol or ethylene glycol diacetate.

In the same field of endeavor, Bergo-Heineman discloses composition comprising of silver oxide (silver compound) and ethylene glycol (reducing agent) to form an electrically conductive coating (Col. 2, lines 17-30). The prior art further discloses the silver oxide first ground and grind in a ball mill for 24 hours before mixing with ethylene glycol (Col. 2, lines 17-18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have optimize the composition of an metal coating (i.e., electrically conductive coating) by using common alcohols such as ethylene glycol, diethylene glycol, triethylene glycol or ethylene glycol diacetate as reducing agent, as taught by Niihara in view of Bergo-Heineman, in order to provided a suspension medium for the dispersing silver compound.



In addition, it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, see *In re Kerkhoven*, 626 F.2d 846,850,205 USPQ 1069, 1072 (CCPA 1980).

Regarding claims 5 and 6, Bergo-Heineman further discloses an electrically conductive coating method comprising the step of applying a silver oxide coating to the substrate then applying heat to the silver oxide coating to dissociate silver oxide to silver whereby the residual silver sinter (fuse) to the surface of the substrate (Col. 2, lines 37-43).

Regarding claim 16, Bergo-Heineman further discloses an electrically conductive, wherein a dispersion medium is used to disperse or dissolve the particulate silver compound and reducing agent and obtain a liquid electrically conductive composition (Col. 2, lines 17-25).

Regarding claim 17, Bergo-Heineman further discloses an electrically conductive composition, wherein ethylene glycol (organic solvent) is used as the dispersion medium (Col. 2, lines 17-25).

Regarding claim 18, Bergo-Heineman further discloses an electrically conductive composition, wherein when the reducing agent is a liquid and the particulate silver

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compound is dispersed, the reducing agent also serves as a dispersion medium. (Col. 2, lines 17-25)

Regarding claim 21, Bergo-Heineman further discloses an electrically conductive composition, wherein the viscosity of the electrically conductive composition is a paste (about 30-300 poise) (Col. 2, lines 17-25). The reference disclosure of the conductive composition is a paste reads on the instant claimed limitation of the composition having a viscosity of about 30-300 poise.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergo-Heineman et al. (U.S Pat. 2,560,151).

Regarding claim 7, Bergo-Heineman discloses composition comprising of silver oxide (silver compound) and ethylene glycol (reducing agent) to form an electrically conductive coating (Col. 2, lines 17-30). The reference further discloses a product by process step of applying the silver oxide coating to the substrate then applying heat to the silver oxide coating to dissociate silver oxide to silver whereby the residual silver sinter (fuse) to the surface of the substrate (Col. 2, lines 37-43).

Any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is

patentably distinct, not the examiner to show the same process of making, see *In re* Brown, 173 USPQ 685 and *In re* Fessmann, 180 USPQ 324.

Bergo-Heineman does not explicitly disclose the silver oxide coating composition having the claimed volume resistive range. However, it would have been obvious to one of ordinary skill in the art to have had a seasonably expectation at the time the invention was made that the compositions as taught by Bergo-Heineman would encompass the claimed properties because the composition comprises of the similar components that is produce by similar method for the similar utility. One skilled in the art would have reasonably expected the composition to have the same properties. The Examiner further notes that the USPTO is not equipped to perform laboratory testings and experimental benchworks to measure the properties of the resulting composition. The burden is on the applicant to prove otherwise.

Further, a known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use, see *In re Gurley*, 27 F.3d 55 1,554,3 1 USPQ2d 1 130, 1132 (Fed. Cir. 1994). Further, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including non-preferred embodiments, see *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert*, denied, 493 U.S. 975 (1989).

In addition, the court has held that compositions are indefinite for being defined in terms of properties alone. *Ex parte Spacht*, 165 USPQ 409 (PO Bd Pat App 1969); *Ex*

*parte* Slob157 USPQ 172 (PO Bd Pat. App 1967); *Ex parte Pulvari*, 157 USPQ 169 (PO Bd Pat. App 1966).

7. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niihara et al. (U.S. Pub. 2004/0005406) in view of Bergo-Heineman et al. (U.S. Pat. 2,560,151) as applied to the claims above, and further in view of Robillard (U.S. Pat. 4,206,017 hereinafter, "Robillard").

Niihara and Bergo-Heineman are relied upon as set forth above. With respect to instant claims 19 and 20, Niihara and Bergo-Heineman do not disclose an electrically conductive composition, wherein adding a dispersant prevents secondary aggregation of the particulate silver composition.

In the same field of endeavor, Robillard discloses an electrically conductive layer form by adding a binder (dispersant) such as methylcellulose, hydroxyethylcellulose, carboxymethylcellulose, polyvinyl-alcohol or polyvinylpyrrolidone (Col. 3, lines 6-12) to a mixture comprising of positive charge substances such as silver oxide (Col. 2, line 55) and polyalcohols such as ethylene-glycol, diethylene-glycol, triethylene-glycol (Col. 3, lines 57-58). The binder is added in a ratio of 3:1 to 8:1 base on the dry weight of colour centre-generating substance, e.g. silver oxide (Col. 3, lines 21-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to add a binder such as methylcellulose, hydroxyethylcellulose, carboxymethylcellulose, polyvinyl-alcohol or polyvinylpyrrolidone, as taught by Niihara in view of Bergo-Heineman and further in view of Robillard, in order

to provide electrosensitive layer being supported by a layer which is a good conductor of electricity brought to a positive potential and containing a substance which is able to supply to the electrosensitive layer the same number of positive charges as electrons injected by the marking electrode.

Further, it is *prima facie* obvious to combine the compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, see *In re Kerkhoven*, 626 F.2d 846,850,205 USPQ 1069, 1072 (CCPA 1980).

### **Conclusion**

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh T. Nguyen whose telephone number is (571)

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272-8082. The examiner can normally be reached on Monday-Friday 8:00-5:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on (571) 272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



KTN  
Examiner  
04/25/2007



Mark Kopec  
Primary Examiner